

Getting Started Guide

hp StorageWorks Business Copy EVA/MA/EMA 2.3

Product Version: 2.3

First Edition (September 2004)

Part Number: AA-RVHPA-TE

This guide provides an introduction to the HP StorageWorks Business Copy (BC) for Enterprise Virtual Array (EVA), Modular Array (MA), and Enterprise Modular Array (EMA) product and specifies the planning considerations and installation sequence to follow to create a new BC environment or update an existing BC-supported environment. This guide also provides information for planning, creating, and testing BC jobs.



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Business Copy EVA/MA/EMA 2.3 Getting Started Guide
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about this guide

This getting started guide provides information to help you:

- Understand and prepare prerequisites for a BC environment.
- Create or update a BC environment.

“About this Guide” topics include:

- [Overview](#), page 8
- [Conventions](#), page 11
- [Getting Help](#), page 12

Note: This guide does not contain a glossary. Refer to the glossary in the *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Network Administration Guide*¹ (T3032–96301) for various terms and definitions.

1. Hereafter referred to as BC Network Administration Guide.

Overview

This section covers the following topics:

- [Intended audience](#)
- [Prerequisites](#)

Intended audience

This guide is intended primarily for administrators, who perform the following tasks:

- Plan the BC environment and configurations that serve all BC users
- Install, maintain, and troubleshoot the BC network
- Start and stop BC software, as necessary
- Perform backups of the BC configuration and jobs
- Browse to the BC GUI to perform various administrator tasks
- Create BC jobs for users without necessarily knowing the BC job details (job operations)

If you are a user, read [Chapter 1, “Introduction to Business Copy”](#) on page 13 and [Chapter 4, “Plan, Create, and Test BC Jobs”](#) on page 47 for high-level information.

Topics addressed in this guide include:

- Describing BC replication
- Planning an initial or update installation of BC software
- Creating or updating a BC environment containing a BC network
- Planning, creating, and testing BC jobs

Prerequisites

Tasks in this guide require knowledge of BC-supported:

- Storage Area Network (SAN) fabric configurations
- Host operating-system (OS) environments
- HP StorageWorks EVA, MA, and EMA storage systems using the following hardware and software:
 - EVA: HSV110 or HSV100 controllers running virtual controller software (VCS)
 - MA/EMA: HSG80 controllers running array controller software (ACS)
- HP StorageWorks storage managers:
 - EVA: Command View EVA
 - MA/EMA: HSG Element Manager
- Multibus failover configurations
- HP OpenView Storage Management Appliance (SMA) hardware and software

BC prerequisites for performing replication include:

- A supported BC environment
- A valid Business Copy EVA Replication License for the replicated storage capacity
- Installation of supported EVA, MA, or EMA storage systems and storage manager software

Related documentation

In addition to this guide, HP provides corresponding information:

- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Read Me First* (T3660–96001)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Update Read Me First* (AA–RQ70H–TE)
- BC Network Administration Guide
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Online Help & User Guide*² as part of the BC server software and on the BC documentation CD-ROM
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Server Installation Guide*³ (T3032–96202)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Server Release Notes*⁴ (T3032–98201)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Host Agent for HP-UX Installation Guide*⁵ (T3032–96204)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Host Agent for HP-UX Release Notes*⁶ (T3032–98203)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Host Agent for HP OpenVMS Installation Guide*⁵ (AA–RUQPC–TE)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Host Agent for HP OpenVMS Release Notes*⁶ (T3032–98207)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Host Agent for HP Tru64 UNIX Installation Guide*⁵ (T3032–98202)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Host Agent for HP Tru64 UNIX Release Notes*⁶ (T3032–98202)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Host Agent for IBM AIX Installation Guide*⁵ (T3032–96205)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Host Agent for IBM AIX Release Notes*⁶ (T3032–98204)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Host Agent for Linux Installation Guide*⁵ (AA–RUQRA–TE)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Host Agent for Linux Release Notes*⁶ (T3032–98008)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Host Agent for Sun Solaris Installation Guide*⁵ (T3032–96206)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Host Agent for Sun Solaris Release Notes*⁶ (T3032–98205)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Host Agent for Windows Installation Guide*⁵ (T3032–96207)

-
2. Hereafter referred to as BC Online Help & User Guide.
 3. Hereafter referred to as BC Server Installation Guide.
 4. Hereafter referred to as BC Server Release Notes.
 5. Hereafter referred to as BC Host Agent Installation Guide.
 6. Hereafter referred to as BC Host Agent Release Notes.

- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Host Agent for Windows Release Notes*⁶ (T3032–98206)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3 Using BC with Continuous Access EVA and Data Replication Manager Application Notes*⁷ (T3032–96208)
- *HP StorageWorks Business Copy EVA/MA/EMA 2.3, Using Microsoft SQL Server with DButil Application Notes*⁸ (AA–RVHRA–TE)
- *HP StorageWorks Business Copy EVA Replication License Key Installation Instructions*⁹ (AV–RVJGB–TE)
- *HP StorageWorks JREserver 1.0 Installation Guide*¹⁰ (AA–RVHQA–TE)

7. Hereafter referred to as BC Application Notes, Using BC with Continuous Access EVA and DRM.

8. Hereafter referred to as BC Application Notes, Using SQL Server with DButil.

9. Hereafter referred to as BC EVA Replication License Key Installation Instructions.

10. Hereafter referred to as JREserver Installation Guide.

Conventions

Conventions consist of the following:

- Document conventions
- Text symbols

Document conventions

This document follows the conventions in [Table 1](#).

Table 1: Document Conventions

Convention	Element
Blue text: Figure 1	Cross-reference links
Bold	Menu items, buttons, and key, tab, and box names
<i>Italics</i>	Text emphasis and document titles in body text
Monospace font	User input, commands, code, file and directory names, and system responses (output and messages)
<i>Monospace, italic font</i>	Command-line and code variables
Blue underlined sans serif font text (http://www.hp.com)	Web site addresses

Text symbols

The following symbols may be found in the text of this guide. They have the following meanings:



WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or death.



Caution: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or data.

Tip: Text in a tip provides additional help to readers by providing nonessential or optional techniques, procedures, or shortcuts.

Note: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Getting Help

If you still have a question after reading this guide, contact an HP authorized service provider or access our web site: <http://www.hp.com>.

HP technical support

Telephone numbers for worldwide technical support are listed on the following HP web site: <http://www.hp.com/support/>. From this web site, select the country of origin.

Note: For continuous quality improvement, calls may be recorded or monitored.

Be sure to have the following information available before calling:

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

HP storage web site

The HP web site has the latest information on this product, as well as the latest drivers. Access storage at: <http://www.hp.com/country/us/eng/prodserv/storage.html>. From this web site, select the appropriate product or solution.

To provide feedback on BC features, functionality, or documentation, send e-mail to: BCFeedback@hp.com.

HP authorized reseller

For the name of your nearest HP authorized reseller:

- In the United States, call 1-800-345-1518
- In Canada, call 1-800-263-5868
- Elsewhere, see the HP web site for locations and telephone numbers: <http://www.hp.com>.

Introduction to Business Copy

1

This chapter provides an introduction to BC, including descriptions of BC replication, licensing, software, and network components necessary for a BC environment to perform properly. Other introductory information in this chapter includes various BC job operations, BC kit contents and documentation, and a list of other products that perform BC replication.

Topics include:

- [What is Business Copy replication?](#), page 14
- [What other products perform BC replication?](#), page 22

What is Business Copy replication?

Business Copy *replication* is a feature of HP StorageWorks arrays that allows you to quickly make local point-in-time copies of your data using various StorageWorks products. All of the products, however, rely on the individual array-specific internal replication engine to rapidly make local copies of the virtual disks for this array.

Topics include:

- [What is replication licensing?](#), page 14
- [What is BC server software?](#), page 14
- [What is BC host agent software?](#), page 15
- [BC network and use example](#), page 16
- [What operations can be performed with BC jobs?](#), page 17
- [How to obtain BC software and documentation](#), page 19

What is replication licensing?

To perform BC replication, an array must be licensed as follows.

- For EVA arrays—Purchase a BC replication license and install a license key. The license key enables the BC replication features included in the virtual controller software (VCS).
- For MA/EMA arrays—Purchase a BC-supported version of array controller software (ACS). Installing the ACS automatically enables the BC replication features.

Refer to the BC Network Administration Guide for additional licensing information.

What is BC server software?

BC server software is an advanced replication management tool that simplifies and automates replication tasks by using *BC jobs*. When used in conjunction with BC host agent software, BC jobs can dynamically mount virtual disks and interact with the host applications.

The BC server software includes a browser-based GUI (see [Figure 1](#)) that allows you to:

- Manage BC replication activities on multiple arrays.
- Quickly create BC jobs using the integrated job editor and job templates.
- Validate BC job operation logic and syntax before running the job.
- Run BC jobs on demand or using an integrated scheduler.
- Monitor BC job progress and view detailed job activity logs.
- View array and virtual disk resources.
- View hosts and host volume resources (requires BC host agent software).

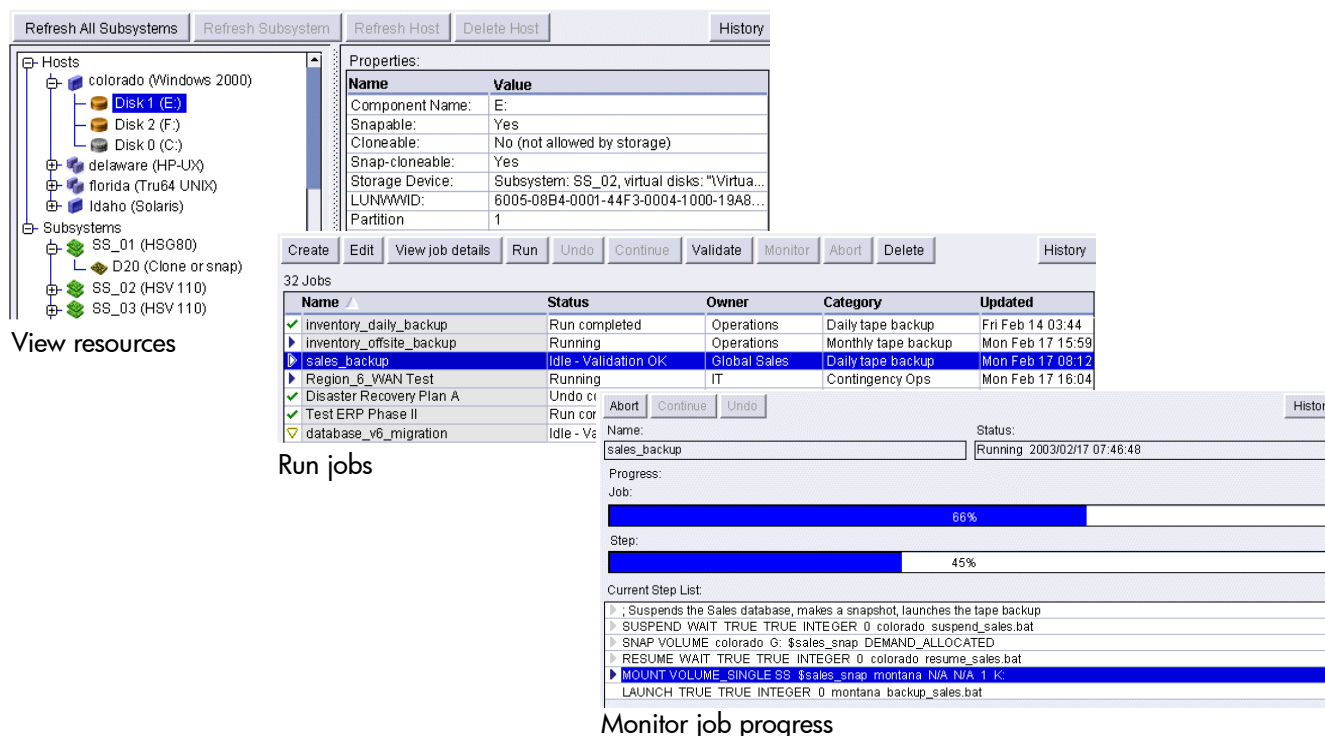


Figure 1: BC GUI displays

No additional licensing is required to use BC server software. A single installation of the BC server can simultaneously support multiple EVA and MA/EMA arrays. Refer to the BC Network Administration Guide for additional licensing information.

What is BC host agent software?

BC host agent software installations create *BC-enabled hosts*, which provide OS-specific tools that enable BC job interactions with hosts. When a host is BC-enabled, you can create BC jobs that:

- Perform BC replication by specifying the host and host volume name.
- Mount virtual disks on the host without rebooting the host (dynamic mount).
- Suspend and resume application I/O on the host.
- Launch (run) applications on the host.

BC host agent software also provides interactions with:

- OSs, file systems, logical volume managers, and cluster software.
- Fibre Channel HBAs, multi-pathing software, and LANs.
- Database, backup, and other applications.

Installing the BC host agent software also installs a BC command line program called EVMCL. With EVMCL, you can:

- Run BC jobs from a host computer command line interface.
- Write scripts that run BC jobs via EVMCL.

EVMCL includes return codes that allow conditional interactions between BC jobs and host scripts. [Figure 2](#) illustrates part of the EVMCL interface.

```

hp StorageWorks business copy
evmcl (Version 2.2 build=40) Copyright (C) 1998-2003 Hewlett-Packard Company

Syntax:  evmcl [option]
         where option is one of -?, -v, -ini
         -?  print this help
         -v  print evmcl version information
         -ini create a new EVMcl.ini file with all supported commands.
              If EVMcl.ini already exists, it is copied to EVMcl.ini.bak.

         evmcl <appliance> <bc_command> <bc_job> [/output=Filename.ext] [/i]
         where /i allows evmcl to return immediately,
              otherwise, evmcl waits for <bc_command> to complete.
         and /output=Filename.ext allows all XML to be output to the named file.

Example: evmcl swma999999 run "clone database job" /i

Commands: abort   continue   execute  getjoblist run
           status  statusdetail undo   validate

           note: execute and run are equivalent commands.

For more help on evmcl, browse to the business copy online Help/User Guide

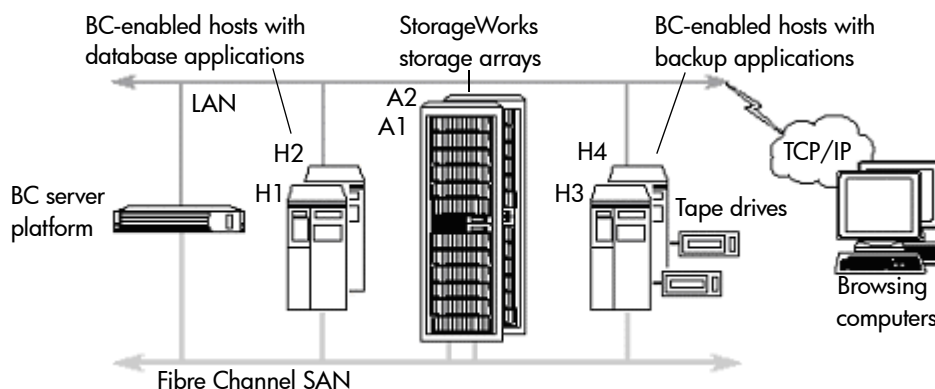
```

Figure 2: EVMCL help menu example

No additional licensing is required to use BC host agent software. For additional information, refer to the BC Network Administration Guide.

BC network and use example

Figure 3 shows a BC network that consists of a BC server platform connected by a LAN to BC-enabled host computers. This configuration includes multiple storage system arrays, multiple hosts with database applications, and multiple hosts with backup applications. For clarity, only two of each are shown.



Reference	Description	Host application
A1	EVA array	Oracle® for HP-UX Exchange Server
A2	MA/EMA array	
H1	Host with HP-UX connected to array A1	VERITAS NetBackup for HP-UX VERITAS Backup Exec for Windows
H2	Host with Microsoft® Windows® connected to array A2	
H3	Host with HP-UX connected to array A1	VERITAS NetBackup for HP-UX VERITAS Backup Exec for Windows
H4	Host with Windows connected to array A2	

Figure 3: BC network example

An administrator of a large SAN could use this configuration and BC jobs to perform simultaneous, non-disruptive tape backups of the Oracle and Microsoft Exchange Server databases. To run daily backups, for example, the administrator might create two jobs, each performing the following steps with their respective resources:

1. Momentarily suspend host application I/O to the array.
2. Make an instantaneous snapshot of the database on the array.
3. Immediately resume host application I/O to the array.
4. Dynamically mount the snapshot on a host for tape backup.
5. Launch a tape backup and wait for successful completion of the backup.
6. On completion of the backup, begin an “undo” to unmount the snapshot, delete the snapshot from the array, and return the snapshot disk space to general availability.

What operations can be performed with BC jobs?

The BC server integrated job editor provides a rich set of operations for simplifying replication tasks. You can select a job template or create your own by simply dragging and dropping operations into the step-sequence window. Operation parameters are completed by choosing resources from drop-down lists or by entering resource names.

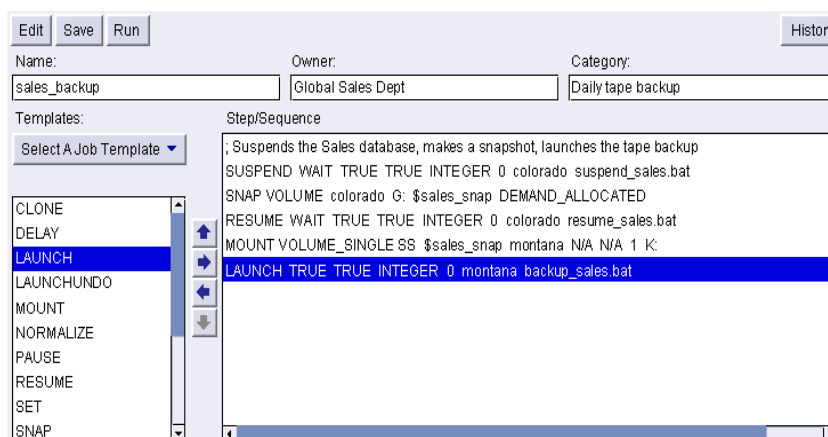


Figure 4: BC server integrated job editor

See [Table 2](#), [Table 3](#), and [Table 4](#) for a summary of BC job operations. Refer to the BC Online Help & User Guide for instructions on using these operations and for OS-specific details.

Table 2: BC job operations with arrays

Operations with arrays	EVA	MA/EMA	Remarks
Replication operations			
clone unit		✓	
clone volume		✓	Requires a BC-enabled host
normalize unit	✓	✓	
normalize volume	✓	✓	Requires a BC-enabled host
snap unit (snapshot, demand allocated)	✓		
snap unit (snapshot, fully allocated)	✓	✓	

Table 2: BC job operations with arrays (continued)

Operations with arrays	EVA	MA/EMA	Remarks
snap unit, snapclone	✓	✓	
snap volume (snapshot, demand allocated)	✓		Requires a BC-enabled host
snap volume (snapshot, fully allocated)	✓	✓	Requires a BC-enabled host
snap volume, snapclone	✓		Requires a BC-enabled host
split unit		✓	
split volume		✓	Requires a BC-enabled host
split_begin unit		✓	
split_begin volume		✓	Requires a BC-enabled host
split_finish unit		✓	
split_finish volume		✓	Requires a BC-enabled host
Other operations			
set ca_subsystem	✓		
set diskgroup	✓		

Table 3: BC job operations with hosts

Operations with hosts	Remarks
launch	Requires a BC-enabled host
launchundo	Requires a BC-enabled host
mount unit	Requires a BC-enabled host
mount volume_all	Requires a BC-enabled host
mount volume_single	Requires a BC-enabled host
resume	Requires a BC-enabled host
suspend	Requires a BC-enabled host
unmount	Requires a BC-enabled host

Table 4: Internal BC job operations

Internal operations	Remarks
delay	
pause	
set unit_bcv	
set volume_bcv	
undo	
waituntil	

How to obtain BC software and documentation

The BC server software, host agent software, and documentation are available for download from the Web at <http://h18000.www1.hp.com/products/storage/software/bizcopyeva/index.html>. The Business Copy EVA kit, which supports both EVA and MA/EMA arrays, can be ordered from HP.

Note: BC is available to new customers in a kit form that must be purchased and to current BC customers as a Web-only download.

Topics include:

- [BC product kit](#), page 19
- [BC software update capability](#), page 20
- [Downloading BC software and documentation from the Web](#), page 20

BC product kit

Individual items in the BC product kit are listed in [Table 5](#). These items can be downloaded from the BC product web site using the procedure in “[Downloading BC software and documentation from the Web](#)” on page 20. Refer to the BC Network Administration Guide for a complete BC product history.

Table 5: BC product kit contents

Component	Format	Description
BC server software	One CD-ROM	Software for installing the BC server on an SMA or Storage Management Server (SMS).
BC host agent software	One CD-ROM	Software for installing the BC host agent on a supported host computer.
BC documentation	CD-ROM with technical documents as portable data format (PDF) files and OS-specific BC Online Help & User Guide files in HyperText Markup Language (HTML) format	<p>BC documents consisting of:</p> <ul style="list-style-type: none"> ■ Read Me First ■ Getting Started Guide ■ Network Administration Guide ■ Server Installation Guide ■ Server Release Notes ■ Host Agent Installation Guides (by OS) ■ Host Agent Release Notes (by OS) ■ Using BC with Continuous Access EVA and Data Replication Manager Application Notes ■ Replication License Key Installation Instructions ■ Help & User Guide <p>The BC Help & User Guide can be viewed without installing BC software. To open the Help & User Guide from a local drive or CD-ROM:</p> <ol style="list-style-type: none"> 1. Browse to <code>..\Help\Master</code>. 2. Double-click the <code>start.htm</code> file to display the Help & User Guide menu page. 3. Click an OS link to continue.
Java™ Runtime Environment (JRE) server	One CD-ROM	JREserver software, specific to an OS, that BC recommends to properly display and use the BC GUI from supported browsing computers. Refer to the JREserver Installation Guide.

BC software update capability

BC v2.3 software updates the following BC network environments: BC v2.1, v2.1a, and v2.2.x.

Note: See [Chapter 2](#) and [Chapter 3](#) for the BC update process to follow.

Downloading BC software and documentation from the Web

Use the following procedure to download BC software and documentation from the BC product web site:

1. Visit <http://h18000.www1.hp.com/products/storage/software/bizcopyeva/index.html>.
2. Click **software & drivers**.
3. Click **download drivers and software**.
4. Click **Business Copy Upgrade UI v2.3 Med/Doc Kit**.
5. Click an OS.

6. Click the **download** icon for each download component, as desired.

Note: The BC server and documentation downloads are identical for all supported OSs. However, BC host agent downloads are unique to an OS or group of OSs.

7. From the browser, click **Back** to repeat [step 5](#) and [step 6](#) to download more BC host agent software files for BC networks with multiple OSs.

Tip: HP recommends making a backup of the downloaded files for ease of use and future reference.

What other products perform BC replication?

Table 6 lists other StorageWorks products and interfaces that can be used to perform BC replication.

Table 6: Other products that perform BC replication

Array type and product	Interface	Remarks
EVA arrays		
Command View EVA	Browser-based GUI	<ul style="list-style-type: none"> ■ Creates snapshots and snapclones from a GUI. ■ Replicates by specifying an array and virtual disk; cannot replicate by specifying a host and host volume. ■ Cannot perform dynamic mounting or interactions with hosts. Does not provide jobs, job templates, or scripting capabilities.
Storage System Scripting Utility (SSSU)	Host command line	<ul style="list-style-type: none"> ■ Creates snapshots and snapclones from a command line or custom script. ■ Replicates by specifying an array and virtual disk; cannot replicate by specifying host and host volume. ■ Dynamic mounting and host interactions must be accomplished entirely by writing custom scripts.
MA/EMA arrays		
HSG Element Manager	Browser-based GUI	<ul style="list-style-type: none"> ■ Creates snapshots and clones from a GUI. ■ Replicates by specifying an array and virtual disk; cannot replicate by specifying a host and host volume. ■ Cannot perform dynamic mounting or interactions with hosts. Does not provide jobs, job templates, or scripting capabilities.
Command Scripter	Browser-based GUI and host command line	<ul style="list-style-type: none"> ■ Creates snapshots and snapclones from a GUI, command line, or custom script. ■ Replicates by specifying an array and virtual disk; cannot replicate by specifying host and host volume. ■ Dynamic mounting and host interactions must be accomplished entirely by writing custom scripts.

Preparing to Get Started

2

This chapter describes items of interest that should be known prior to getting started and provides an overview of the BC environment creation and update process. Topics include:

- [What you should know before getting started](#), page 24
- [Tasks for creating or updating a BC environment](#), page 28
- [Where to obtain additional information](#), page 30



Caution: This document contains critical information that is important and can save you time by helping to avoid:

- Configuration and installation issues that could cause downtime if you: (1) do not know about specific issues, and (2) do tasks in the wrong sequence
 - Job failures
 - Reduced operational functionality or integrity
-

What you should know before getting started

Unlike other applications where you can install the software, configure a few settings, and start using the application, BC requires considerable up-front hardware and software configuration *prior to installation*. Failure to have the correct versions of related software (for example, browser-JRE combination, HP StorageWorks Secure Path, or HBA/FCA firmware), the proper Business Copy EVA Replication License for the replicated storage capacity, and a supported BC server platform configuration prevents BC from functioning properly.

Following the steps in this guide avoids wasting time on troubleshooting many of these types of issues.

Figure 5 illustrates the high-level steps for creating a new BC environment or updating an existing BC environment.

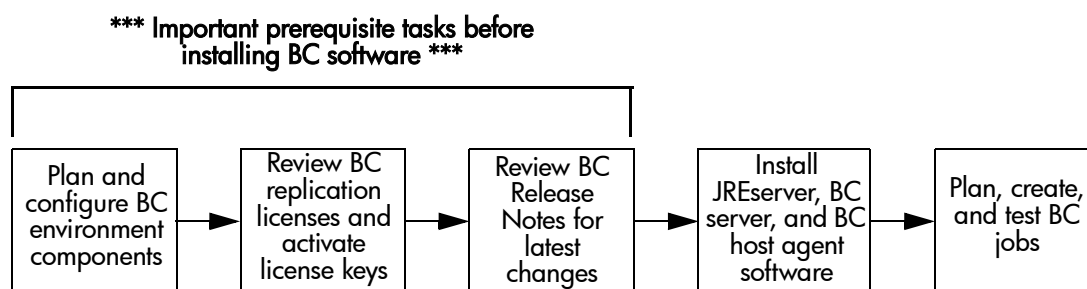


Figure 5: Tasks for establishing a BC environment

Specific items to know pertaining to BC configuration and software are addressed in the following sections:

- [Before installing BC—What you should know](#), page 24
- [After installing BC—What you should know](#), page 26
- [Creating/running jobs—What you should know](#), page 27

Before installing BC—What you should know

Table 7 lists items of interest to know before installing BC software.

Table 7: What you should know before installing BC software

What you should know	Description	Where to go...
Release Notes contain last-minute changes.	To avoid problems before installation, check the Release Notes for last-minute changes.	<ul style="list-style-type: none"> ■ BC Server Release Notes and ■ BC Host Agent Release Notes
Remove SWCC software from the BC environment if this software accesses the same storage systems as the HSG Element Manager.	BC environments <i>do not</i> support HP StorageWorks Command Console (SWCC) HS-Series software. SWCC software <i>cannot</i> co-exist with the HSG Element Manager in a BC environment.	SWCC documentation for the procedure to uninstall SWCC
Linux BC-enabled hosts require a standard C++ library.	An RPM standard C++ library must be installed on the Linux BC-enabled host before the BC daemons can start on this host.	Linux documentation for library and installation information

Table 7: What you should know before installing BC software (continued)

What you should know	Description	Where to go...
BC operations depend on using the correct version of component software.	<p>To function properly, BC environments depend on using the correct versions of the BC server platform, BC server software, storage managers, BC host agent software, host bus adapters (HBAs)/Fibre Channel adapters (FCAs), and a specific Internet browser-JRE combination on each browsing computer.</p> <p>Of particular importance are the browser/JRE versions—without a supported browser and recommended JRE, the browsing computer cannot access the BC GUI.</p> <p>Make sure to use the correct versions of component software.</p>	<ul style="list-style-type: none"> ■ BC Network Administration Guide for BC component requirements and support information, plus supported browser/JRE combinations ■ “Step 7: Install BC prerequisite hardware and software” on page 42 ■ “Step 8a: Install the JREserver” on page 43
HSG Element Manager remote access must be manually enabled if required by the BC environment configuration.	If the HSG Element Manager is not locally installed on the same BC server platform as the BC server software, then remote access to the HSG Element Manager must be enabled.	BC Network Administration Guide for the procedure to enable remote access.
Rename an SMA before the BC environment is created to save time in the future.	<p>Before installing the BC server and BC host agent software, consider renaming any SMA with a name that is tied to the SMA serial number. Changing the name before installing BC software may avoid the need to uninstall and reinstall BC and other software on the SMA in the event of an SMA failure, which requires replacing the SMA.</p> <p>Renaming also provides a more recognizable, user-friendly name for the SMA in the BC environment.</p>	“SMA renaming recommendation” on page 38
The sequence for installing BC environment components affects operability.	Following the HP recommended sequence for installing BC environment components is essential for ensuring BC operability. This sequence is particularly important when updating an older version of the SMA.	“Creating or Updating a BC Environment” on page 31
BC does not support Microsoft Volume Shadow Copy Service (VSS).	BC does not support installing BC host agent software on a Windows Server 2003 host using VSS because of interoperability issues.	Avoid installing BC on Windows hosts that use VSS. Refer to the BC Network Administration Guide for volume group/domain information.
BC server and BC host agent software cannot reside on the same computer.	Install the BC server software on a supported BC server platform, and install the BC host agent software on a supported host computer.	BC Network Administration Guide for BC planning and configuration requirements
BC environments cannot include a mix of EVM or BC software versions.	All BC software in a BC environment must be the same version. For example, BC v2.3 server software does not function properly with EVM v2.0c or BC v2.1a host agent software.	<ul style="list-style-type: none"> ■ BC Network Administration Guide for BC planning and configuration, plus component requirements and support, and ■ BC Online Help & User Guide for job planning

Table 7: What you should know before installing BC software (continued)

What you should know	Description	Where to go...
Always install Command View EVA software on the BC server platform before installing BC software.	Communication between the BC server software and Command View EVA expects these applications to be on the same platform. BC server software cannot be installed on an SMS unless Command View EVA is already installed and running.	BC Network Administration Guide for BC planning and configuration requirements
Specific “update” related items		
Windows NT® hosts are no longer supported as BC-enabled hosts.	BC v2.3 <i>does not</i> provide BC host agent software for Windows NT hosts. Migrate existing BC-enabled Windows NT hosts to standard host functionality or another BC-supported Windows OS.	<ul style="list-style-type: none"> ■ Storage managers for standard host replication information ■ BC Network Administration Guide for Windows NT host migration information
Make a backup of BC update files downloaded from the Web.	After downloading BC update files, HP recommends backing up the update files, or making CD-ROM copies. This process ensures speedy BC installations and updates in the future, without re-downloading files.	BC Network Administration Guide for BC software download information
Before updating an existing BC environment, consider all reconfiguration ramifications.	Consider the ramifications of updating to a new BC version. Although a new BC version includes valuable new features, this version may also affect your decision to update due to required hardware and software implications.	BC Network Administration Guide for planning and configuration information.
Upgrading an Enterprise Volume Manager (EVM) v1.x or v2.0x environment requires additional EVM software or removing the EVM software and updating all EVM jobs.	BC v2.3 <i>does not</i> support updating directly from EVM v1.x or EVM v2.0x. To install BC v2.3, EVM software must be uninstalled from all EVM hosts and the SAN must be updated to meet BC v2.3 requirements. Also, all EVM jobs may require syntax/operation changes.	<ul style="list-style-type: none"> ■ EVM software documentation to remove unsupported EVM software, ■ BC Network Administration Guide for BC component requirements and support information, and ■ BC Online Help & User Guide for job planning

After installing BC—What you should know

Table 8 lists items of interest to know after installing BC software.

Table 8: What you should know after installing BC software

What you should know	Description	Where to go...
Updating from EVM V2.0x to BC v2.3 requires BC job changes.	All jobs involving the MOUNT VOLUME operation must be manually edited before execution. Other new job features may also apply.	BC Online Help & User Guide for job operations help
Existing BC jobs for HP-UX might not run after updating to BC v2.3.	A BC job change for HP-UX hosts changed the BCV component path. HP-UX jobs that involve BCV components must be edited to run successfully.	BC Network Administration Guide for troubleshooting information
Previous Web browser bookmarks to BC do not work.	The process for accessing the BC GUI has changed, making old bookmarks obsolete.	BC Network Administration Guide for information on browsing to the BC GUI

Table 8: What you should know after installing BC software (continued)

What you should know	Description	Where to go...
Renaming SMAs after establishing a BC environment is time-consuming.	HP <i>does not</i> recommend renaming an SMA after establishing a BC environment. Renaming at this point requires uninstalling and reinstalling the BC server software (and possibly other value-added software), and updating all BC-enabled hosts in this BC environment. For large BC environments, this renaming process can be time-consuming.	“SMA renaming recommendation” on page 38
All BC-enabled host icons on the Resources page display in green.	All BC-enabled hosts in a BC network must be the same software version as the BC server. Any BC-enabled host icon that displays in red must be updated to the BC server software version.	“Step 8: Install the JREserver and BC software” on page 43

Creating/running jobs—What you should know

[Table 9](#) lists items of interest to know before creating or running BC jobs.

Table 9: What you should know before creating or running BC jobs

What you should know	Description	Where to go...
A list of job-related problems exists.	To avoid known problems, review the Troubleshooting information and the rules for creating jobs.	<ul style="list-style-type: none"> ■ BC Network Administration Guide for troubleshooting information, and ■ BC Online Help & User Guide for job planning
The BC GUI browser session automatically times out after 15 minutes of inactivity.	Web browser session time-out is important to remember when creating jobs. Because user input data is lost when time-out occurs, HP recommends saving often.	<ul style="list-style-type: none"> ■ BC Network Administration Guide for best practices, and ■ BC Online Help & User Guide for job planning
A red host icon on the Resources page indicates a host that cannot be used in BC jobs.	Updating the BC server requires all BC-enabled hosts to also be updated to this version. The host icon for any down-revision BC-enabled host displays in red and is prevented from use in BC jobs.	“Step 8: Install the JREserver and BC software” on page 43
For EVA storage systems only, changing the HSG Element Manager password while running BC jobs causes the BC jobs to fail.	BC requires the HSG Element Manager password to display available storage resources. Failure to keep BC synchronized with the HSG Element Manager password causes BC jobs to fail.	BC Network Administration Guide for changing and synchronizing passwords
Regularly back up BC jobs and configurations.	The BC GUI provides the capability to save BC jobs and configurations to a host computer. HP recommends scheduling regular backups of jobs and configurations for fault tolerance protection.	<ul style="list-style-type: none"> ■ BC Network Administration Guide for best practices information, and ■ BC Online Help & User Guide for page help (configuration save/reload information)
Replicating a Microsoft SQL Server 2000 database using BC requires the HP StorageWorks DButil application.	BC jobs use DButil scripts before and after the replication process to temporarily stop and start the SQL Server database. Without these scripts, BC cannot effectively replicate the database.	BC Application Notes, Using SQL Server with DButil for instructions on using the DButil application. This document is available on the BC product web site.

Tasks for creating or updating a BC environment

This section contains sequential task maps for creating a new BC environment and for updating existing BC environments:

- [Task map: new BC environments](#), page 28
- [Task map: updating existing BC environments](#), page 29

Task map: new BC environments

Table 10 lists high-level tasks for creating a new BC environment.

Table 10: Sequential tasks for creating a new BC environment

Task	Subtask	Where to go...
1 Check important documents.	<ul style="list-style-type: none"> ■ Check important documents for critical information pertaining to BC. 	“What you should know before getting started” on page 24.
2 Plan and configure BC environment.	<ul style="list-style-type: none"> ■ Plan each BC environment. ■ Determine the BC software requirements for each BC environment component. ■ Complete configuration worksheets as an essential planning tool for each BC environment. 	BC Network Administration Guide for planning, BC component requirements and support, and configuration worksheet samples and blanks.
3 Install BC prerequisite software and BC software.	<ul style="list-style-type: none"> ■ Install BC prerequisite software ■ Install BC server software (provided in the BC product kit) on a supported BC server platform. ■ Install BC host agent software (provided in the BC product kit) on planned host computers. 	<ul style="list-style-type: none"> ■ BC Network Administration Guide for BC prerequisite component requirements and support, ■ Prerequisite software documentation for installation procedures, ■ BC Server Installation Guide, and ■ BC Host Agent Installation Guide for each host OS
4 Start the BC GUI.	<ul style="list-style-type: none"> ■ Browse to the BC GUI to validate the browser/JRE installation and confirm the BC server software installation. ■ Change account login passwords. 	<ul style="list-style-type: none"> ■ BC Network Administration Guide for BC component requirements and how to browse to the BC GUI, and for supported browser/JRE combinations
5 Plan, create, and test BC jobs.	<ul style="list-style-type: none"> ■ Plan BC jobs and review rules and best practices. ■ To use volume groups or domains, review requirements and support aspects. ■ Create jobs using the BC GUI or command line scripting. 	<ul style="list-style-type: none"> ■ BC Online Help & User Guide for job planning and page help (job creation information), ■ BC Network Administration Guide for volume group and domain information, ■ BC Network Administration Guide for scripting information, and ■ BC Release Notes for last-minute changes.

Table 10: Sequential tasks for creating a new BC environment (continued)

Task	Subtask	Where to go...
6	<div>Review BC best practices information.</div> <ul style="list-style-type: none"> Review BC documentation for best practices and optimizations. 	BC Network Administration Guide for best practices information.
After the BC network environment is up and running:		
Maintenance tasks:	Perform post-installation tasks as necessary.	BC Network Administration Guide for best practices, maintenance, and troubleshooting information.
Troubleshooting:	Reference known problems and issues as necessary.	

Task map: updating existing BC environments

Table 11 lists high-level tasks for updating an existing BC environment.

Table 11: Sequential tasks for updating a BC environment

Task	Subtask	Where to go...
1	<div>Check important documents</div> <ul style="list-style-type: none"> Check important documents for critical information pertaining to BC. 	"What you should know before getting started" on page 24.
2	<div>Prepare to update</div> <ul style="list-style-type: none"> Review software and hardware requirements for updating BC. Determine how to migrate any BC-enabled Windows NT hosts that are in the existing BC environment. Review the required steps for updating BC prerequisite software. 	BC Network Administration Guide for planning and BC component requirements and support.
3	<div>Install BC prerequisite software and BC software</div> <ul style="list-style-type: none"> Install or update BC prerequisite software. Update BC server software (available on the BC product web site) on the BC server platform. Install BC host agent update software (available on the BC product web site) on planned host computers. 	<ul style="list-style-type: none"> BC Network Administration Guide for BC prerequisite component requirements and support, Prerequisite software documentation for installation procedures, BC Server Installation Guide, and BC Host Agent Installation Guide for each host OS
4	<div>Update BC job files as required</div> <ul style="list-style-type: none"> Review BC documentation to determine what changes may be required for existing BC jobs because of new operations, changes to syntax, new functionality, or incompatibility. 	<ul style="list-style-type: none"> BC Online Help & User Guide for job planning and page help (job creation information), BC Network Administration Guide for volume group and domain information, and BC Server Release Notes and BC Host Agent Release Notes for last-minute change information.

Where to obtain additional information

For additional BC information about:

- Learning how to optimize performance of a BC network, refer to the BC Network Administration Guide for best practices.
- Submitting comments regarding this guide, BC configurations, functions or features, or any other BC comment, send e-mail to: BCFeedback@hp.com.

Creating or Updating a BC Environment

3

This chapter provides the HP recommended sequence of steps for creating a new or updated BC environment and browsing to the BC GUI. Topics include:

- [Step 1: Gather and read important planning documents](#), page 32
- [Step 2: Review BC environment components](#), page 33
- [Step 3: Review BC server platforms](#), page 35
- [Step 4: Choose a BC server platform configuration](#), page 36
- [Step 5: Choose the hosts for installing BC host agent software](#), page 39
- [Step 6: Review and activate BC EVA replication licenses](#), page 41
- [Step 7: Install BC prerequisite hardware and software](#), page 42
- [Step 8: Install the JREserver and BC software](#), page 43
- [Step 9: Browse to the BC GUI](#), page 45

Note: BC v2.3 cannot be used to update an EVM v1.x or EVM v2.0x environment. Attempting to update these environments using BC v2.3 software results in an error message, indicating a lack of BC support.

BC v2.3 software updates the following BC network environments: BC v2.1x and v2.2.x. Refer to the BC Network Administration Guide for planning, configuration, and requirements information.

Step 1: Gather and read important planning documents

The following BC documents are needed to complete important planning aspects as applied in this chapter:

- BC Network Administration Guide
- BC Server Release Notes
- BC Host Agent Release Notes for each host OS
- BC EVA Replication License Key Installation Instructions

Note: If problems arise at any step in this sequential process, refer to the BC Network Administration Guide and check the related Release Notes for last-minute changes, issues, and solutions.

See “[Related documentation](#)” on page 9 to obtain the full BC document titles and part numbers.

For existing BC environments that are being updated, see [Appendix A](#) for a list of new features and changes provided by this release.

Step 2: Review BC environment components

Figure 6 illustrates the basic components of a BC network, which contains one or more BC-enabled hosts (hosts with a BC host agent installed) and any number of standard hosts (hosts that do not have BC host agent software installed).

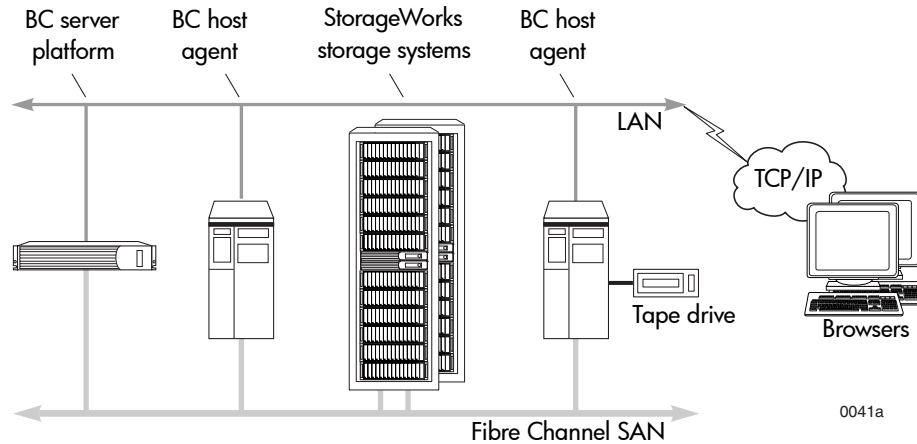


Figure 6: BC environment components

Decision point: Using [Table 12](#), review the basic components for a BC environment to understand the high-level requirements and determine what type of BC environment fits your SAN. Remember these fundamental component requirements when correlating your decision to the planned BC environment per your configuration worksheets.

Note: Refer to the BC Network Administration Guide for hardware and software version requirements and support information and configuration worksheet examples/blanks.

Table 12: BC environment component requirements correlation

BC support	Component	Requirement	Function
Replication performed by either a storage manager or the BC server	Storage systems	<ul style="list-style-type: none"> At least one supported EVA, MA, or EMA storage system. For EVA, only dual controller, multibus failover configurations are compatible with BC. For MA/EMA, only dual controller, multibus failover configurations are compatible with BC, except on Linux hosts. 	<ul style="list-style-type: none"> Storage systems provide storage space for replicating storage information. The controller configuration ensures fundamental failover on storage systems.
	Storage manager software	<ul style="list-style-type: none"> For EVA storage systems: Command View EVA software. For MA/EMA storage systems: HSG Element Manager software. 	Allows storage systems management using a GUI interface, accessed through a Web browser. Also provides BC access to supported storage systems.
	BC server software	<ul style="list-style-type: none"> Optional component Required if used with BC-enabled hosts. Run one, and only one, BC server instance on a supported BC server platform per BC environment. 	<ul style="list-style-type: none"> Without BC-enabled hosts, provides the ability to create, run, and maintain BC jobs. With BC-enabled hosts, controls all activities within the BC network.
	DButil software	Optional component.	Provides a method for recovering clustered Microsoft SQL Server 2000 databases with minimal disruption using BC and DButil.
	Browsing computer	At least one supported Web browsing computer containing a supported browser and recommended JRE combination.	Provides access to the BC and storage manager GUIs for creating and managing jobs.
	Standard host	<ul style="list-style-type: none"> Optional component; a host computer that does not contain BC host agent software. Any number of hosts; only selected host OSs are supported. Each host computer requires a supported OS and must be connected by Fibre Channel and LAN to supported storage systems. 	Performs activities associated with running BC jobs specific to the standard host as directed by the storage manager or BC server.
Replication performed <i>only</i> by the BC server	BC host agent software	<ul style="list-style-type: none"> Optional component One or more BC host agent instance creates a BC network Each host computer requires a supported OS and must be connected by Fibre Channel and LAN to supported storage systems. 	Performs all activities associated with running BC jobs specific to the BC-enabled host as directed by the BC server.

Step 3: Review BC server platforms

Before choosing a BC server platform configuration, understanding the available platform configuration options for each BC environment is important to BC planning and implementation:

- EVA storage systems require either an SMA or BC-supported SMS.
- MA/EMA storage systems require an SMA.

Note: Refer to the BC Network Administration Guide for BC server platform planning information.

Decision point: Table 13 shows the association between the storage systems and the possible BC server platform options. Review each of these options and determine how to maximize usage of current computers in the SAN.

Note: Use Table 13 as a guide for potential configuration changes for existing BC environments. If BC may be part of a HP StorageWorks Continuous Access EVA environment or you are using third-party applications, consider the computers involved in these activities as well. Refer to the BC Application Notes, Using BC with Continuous Access EVA and DRM.

Table 13: Storage system to BC server platform option associations

If the SAN has...	Supported platforms are...	Description
EVA (HSVs)	SMA	An SMA II or III connected to the LAN and Fibre Channel SAN. The BC server and storage manager must be installed on the same platform.
	SMS	A host computer connected to the LAN and Fibre Channel SAN. The BC server and storage manager must be installed on this platform.
MA/EMA (HSGs) ¹	SMA	An SMA II or III connected to the LAN and Fibre Channel SAN.

1. Storage configurations containing both EVA and MA/EMA storage systems are configured following EVA configuration options, except that MA/EMA functionality requires an SMA.

Step 4: Choose a BC server platform configuration

Choosing a BC server platform configuration depends upon several items. [Table 14](#) lists some BC server platform configuration rules and important considerations for determining the best possible configuration.

Table 14: BC server platform configuration rules and considerations

Rules and considerations
Only one BC server platform can be used in a BC environment—zone out all other BC server platforms.
BC server and BC host agent software cannot reside on the same computer.
Any supported Command View EVA software must be installed and running on the supported SMA before installing BC server software.
If BC server software is installed on an SMS, Command View EVA v3.3 must be used.
BC server can access only the storage systems managed by supported storage managers.
An existing SMA cannot be converted to a “supplemental BC server platform” as an SMS.
If managing two or more EVA storage systems, separate BC server software installations are required to manage storage systems running different VCS versions. The BC GUI cannot replicate storage across these two different VCS versions (for example, between v3.014 and 3.020).
BC server software <i>does not</i> support replication across VCS versions.
If using a configuration involving an SMS, consider installing the BC server software on a computer that <i>does not</i> require frequent reboots. (SMAs were designed to avoid this problem.)
If the BC server platform is an SMS with remote access to an SMA for HSG Element Manager support, a BC server instance on the SMA cannot use the same HSG storage systems as the BC server instance on the SMS. Also, when performing maintenance or troubleshooting in this type of environment, be very careful when stopping the BC service to ensure the correct BC server instance is being halted.

Decision point: Review [Table 14](#), your planned configuration worksheets for this BC environment, and use [Table 15](#) information as guidance to choose and implement the BC server platform configuration that best fits your plan. For new BC environments, use [Table 15](#) only as a guide.

Note: If the BC server platform configuration is an SMA, consider renaming the SMA, if applicable. See “[SMA renaming recommendation](#)” on page 38.

Note: For supported software version details related to configuration options, refer to the BC Network Administration Guide.

Table 15: BC server platform configuration options

If the SAN includes...	See...
MA/EMA storage systems only	MA/EMA only configuration , page 37
EVA storage systems only	EVA only configuration , page 37
MA/EMA and EVA storage systems	Mixed MA/EMA and EVA configuration , page 38

MA/EMA only configuration

The BC server software interacts with MA/EMA storage systems through the HSG Element Manager. The location of HSG Element Manager determines where to install the BC server software. [Table 16](#) describes a task list for a supported BC environment containing only MA/EMA storage systems.

Table 16: Configuring the BC server platform for use with MA/EMA storage systems only

Configuration task list	Remarks
<ol style="list-style-type: none"> 1. Identify the SMA on which the HSG Element Manager is running or will be installed. 2. Confirm that your SMA version is supported by BC v2.3. 3. Confirm that your HSG Element Manager version is supported by BC v2.3. 4. Confirm that your MA/EMA storage systems and ACS versions are supported by BC v2.3. 	<ul style="list-style-type: none"> ■ Refer to the BC Network Administration Guide for supported MA/EMA storage system requirements. If the storage system requirements are not met, do not install the BC server software. ■ Browse to the HSG Element Manager GUI to confirm the current version. If this version is not supported, do not install the BC server software. ■ For this configuration, a BC server software installation automatically configures BC to use the local HSG Element Manager. The SWP installation method is described in the BC Server Installation Guide. See “SMA renaming recommendation” on page 38 before continuing.

EVA only configuration

The BC server software interacts with EVA storage systems through Command View EVA. The location of Command View EVA determines where to install the BC server software. [Table 17](#) describes a task list for a supported BC environment containing only EVA storage systems.

Table 17: Configuring the BC server platform for use with EVA storage systems only

Configuration task list	Remarks
<ol style="list-style-type: none"> 1. Identify the SMA or SMS on which Command View EVA is running or will be installed. 2. Confirm that your SMA version or SMS is supported by BC v2.3. 3. Confirm that your Command View EVA version is supported by BC v2.3. 4. Confirm that your EVA storage systems and VCS versions are supported by BC v2.3. 	<ul style="list-style-type: none"> ■ Refer to the BC Network Administration Guide for details on how to distinguish an SMA from an SMS. ■ Refer to the BC Network Administration Guide for supported EVA storage system requirements. If the storage system requirements are not met, do not install the BC server software. ■ Browse to the Command View EVA GUI to confirm the current version. If this version is not supported, do not install the BC server software. ■ For this configuration, a BC server software installation automatically configures BC to use the local Command View EVA. If Command View EVA is on an: <ul style="list-style-type: none"> — SMA, use the SWP installation method described in the BC Server Installation Guide. See “SMA renaming recommendation” on page 38 before continuing. — SMS, use the EXE installation method described in the BC Server Installation Guide.

Mixed MA/EMA and EVA configuration

The BC server interacts with EVA arrays through Command View EVA. The location of Command View EVA determines where to install the BC server software. [Table 18](#) describes a task list for a supported BC environment containing both MA/EMA and EVA storage systems.

Table 18: Configuring the BC server platform for use with MA/EMA and EVA storage systems

Configuration task list	Remarks
<ol style="list-style-type: none"> 1. Identify the SMA or SMS on which Command View EVA is running or will be installed. The Command View EVA location determines where the BC server software must be installed. 2. Confirm that your SMA version or SMS is supported by BC v2.3. 3. Confirm that your HSG Element Manager and Command View EVA versions are supported by BC v2.3. 4. Confirm that your MA/EMA storage systems and ACS versions are supported by BC v2.3. 5. Confirm that your EVA storage systems and VCS versions are supported by BC v2.3. 	<ul style="list-style-type: none"> ■ Refer to the BC Network Administration Guide for details on how to distinguish an SMA from an SMS. ■ Refer to the BC Network Administration Guide for supported MA/EMA and EVA storage system requirements. If the storage system requirements are not met, do not install the BC server software. ■ Browse to the HSG Element Manager GUI and Command View EVA GUI to confirm the current version. Unless both versions are supported, do not install the BC server software. ■ For this configuration: <ul style="list-style-type: none"> — If Command View EVA is on an SMA, a BC server software installation automatically configures BC to use the local Command View EVA and local HSG Element Manager. The SWP installation method is described in the BC Server Installation Guide. See "SMA renaming recommendation" on page 38 before continuing. — If Command View EVA is on an SMS, determine and note the network computer name or IP address of the SMA on which the remote instance of HSG Element Manager is running. This information is needed to complete the BC server software installation. A BC server software installation automatically configures BC to use the local Command View EVA and the remote instance of HSG Element Manager that you specify. The EXE installation method is described in the BC Server Installation Guide.

SMA renaming recommendation

HP recommends changing the default SMA name (a serial number) to an easily recognizable name before installing the BC server software. Renaming the SMA at this point facilitates easy replacement in the event of an SMA failure. After installing the BC server software, SMA renaming involves removing and reinstalling the BC software.

For SMA renaming instructions, refer to the BC Network Administration Guide.

Step 5: Choose the hosts for installing BC host agent software

This step involves choosing the BC environment host computers for installing or updating BC host agent software.

Tip: If BC replication is desired from a standard host, as defined in this section, then BC host agent software installations are not required. Continue to the next step.

BC provides BC host agent software for the following host OSs:

- HP-UX
- HP OpenVMS
- HP Tru64 UNIX®
- IBM AIX
- Linux
- Microsoft Windows
- Sun Solaris

Note: Refer to the BC Network Administration Guide or BC EVA QuickSpec for the host OS versions that are supported by each BC host agent software variant.

The BC EVA QuickSpec also lists supported standard host OSs. Obtain this document from the following web site: <http://h18000.www1.hp.com/products/storage/software/bizcopyeva/specifications.html>.



Caution: Windows NT is no longer supported as a BC-enabled host operating system. For existing customers running Windows NT BC-enabled hosts, these hosts will no longer function with the BC v2.3 server. Refer to the BC Network Administration Guide for Windows NT migration information and complete “Part I” of the migration process before continuing with this step.

Failure to migrate these hosts in the BC network prior to updating the BC server software or uninstalling the BC host agent software, results in the loss of all data stored in the BC directory structure.

Tip: Adding a BC-enabled host into a BC environment containing a BC server platform creates a BC network. BC host agent software cannot function independently; this software requires a BC server platform to become functional.

Two types of replication are supported by BC: storage manager replication and BC-enabled host replication. See [Table 12](#) on page 34 for fundamental requirements.

Decision point: Review your planned configuration worksheets for this BC environment and use [Table 19](#) to choose and implement the type of BC support desired for each host computer.

Table 19: BC replication methods and descriptions

Replication method	Description	Requirements
BC-enabled host	<p>Can communicate with the BC server platform and perform all activities associated with running BC jobs, including:</p> <ul style="list-style-type: none"> ■ Replicating storage volumes by specifying the host name ■ Suspending or resuming host I/O in conjunction with replication ■ Mounting volumes on the host ■ Launching an external job or issuing a host command ■ Viewing, discovering, and deleting hosts presented through the BC GUI 	<p>BC host agent software installed on the host computer. This BC-enabled host must communicate with a BC server platform to be operational.</p>
Standard host	<p>Provides the ability to:</p> <ul style="list-style-type: none"> ■ Use MA/EMA and EVA storage manager GUIs for real-time replication. ■ Create scripts that provide features similar to those provided when using the BC GUI with BC-enabled host (for example, automated replication). 	<p>As a minimum, one of the following:</p> <ul style="list-style-type: none"> ■ HP StorageWorks Storage System Scripting Utility (SSSU): a scripting utility included in host OS EVA Platform Kits. One OS kit is required per SAN, per OS. ■ HP StorageWorks Command Scriptor: a scripting utility for MA/EMAs (a free Web download) ■ A current BC server platform configuration

Step 6: Review and activate BC EVA replication licenses

After determining the storage needs, BC replication licenses must be reviewed. For MA/EMA storage systems, all licenses are provided through the ACS platform kits. For EVA storage systems, licenses must be purchased and the license keys must be activated.

Decision point: Determine whether all BC EVA replication licenses are current and adequate based upon replicated storage capacity needs. If an additional license is required to meet replicated storage needs, contact an HP authorized service provider or reseller. To activate a BC replication license key, refer to the BC EVA Replication License Key Installation Instructions.

Step 7: Install BC prerequisite hardware and software

This step involves installing all prerequisite hardware and software that BC needs. This step is one of the most critical steps for ensuring a successful BC software installation and an operational BC network and must be done prior to installing the BC server and host agent software.

Decision point: Use [Table 20](#) and the BC Network Administration Guide to determine and implement the supported versions of required hardware and software components. Refer to the appropriate documentation and install, or update, each component at this time.

Table 20: BC-related hardware and software to install

For this component...	Confirm the supported versions of...	Install the prerequisite hardware or software using...
Storage systems	<ul style="list-style-type: none"> ■ ACS software ■ VCS software 	ACS or VCS documentation
SMA	<ul style="list-style-type: none"> ■ SMA hardware ■ SMA software 	SMA documentation
SMS	<ul style="list-style-type: none"> ■ Hardware ■ Software 	Windows Server 2003 Enterprise Edition (32-bit) OS documentation
Storage managers	<ul style="list-style-type: none"> ■ Command View EVA ■ HSG Element Manager 	Storage manager documentation
Browsing computer	<ul style="list-style-type: none"> ■ Web browser ■ JRE 	<ul style="list-style-type: none"> ■ Web browser documentation ■ JREserver Installation Guide for the JREserver installation ■ BC Network Administration Guide for supported browser/JRE versions
Intended BC host agent computers	<ul style="list-style-type: none"> ■ Operating system ■ HBAs/FCAs ■ Host OS platform kit ■ Secure Path ■ RPM standard C++ library for Linux hosts 	Applicable product documentation, per OS

Note: Do not continue to the next step until after all BC prerequisite hardware and software are installed, or updated, for this BC environment.

Step 8: Install the JREserver and BC software

This step involves installing the following software:

- [Step 8a: Install the JREserver](#)
- [Step 8b: Install or update the BC server software](#)
- [Step 8c: Install or update the BC host agent software](#)

Note: BC server and host agent software installations require an OS language setting of “US English” during the installation process. For additional information, refer to the troubleshooting section in the BC Network Administration Guide.

Tip: Before beginning these installation processes, review the items of interest found in [“Before installing BC—What you should know”](#) on page 24 to help avoid potential installation issues.

Note: HP recommends installing the JREserver immediately before the BC server software because a JRE is required for the BC GUI to display properly in [“Step 9: Browse to the BC GUI”](#) on page 45. Always install or update the BC server software before moving on to the BC host agent software step. The BC host agent software installation procedure asks for the associated BC server platform name or IP address.

Step 8a: Install the JREserver

Before starting the JREserver installation, refer to the BC Server Release Notes to check for last-minute changes or problems that could affect the installation. Then install the JREserver using the JREserver Installation Guide.

Note: Do not confuse the JREserver (which provides a package of JRE software download options) with JRE software (which runs at the Java applet level). HP recommends that you *do not* install JRE software on the computer running BC server software. Performing “local browsing” to the BC GUI can result in a JRE conflict and a possible loss of BC functionality.

After completing the installation, continue with the BC server software installation in the next step.

Step 8b: Install or update the BC server software

Before starting the BC server software installation, refer to the BC Server Release Notes to check for last-minute changes or problems that could affect the installation. Then install or update the BC server software using the BC Server Installation Guide; this document guides you through the installation:

- If the HSG Element Manager or Command View EVA is on an SMA, use one of the three SWP methods (CD-ROM, FTP, or Local) to install the BC server software on the SMA.

- If Command View EVA is on a SMS, use the EXE method to install the BC server on the SMS. When prompted, enter the network computer name or IP address of the SMA on which the remote instance of HSG Element Manager is running.



Caution: Migrate all Windows NT BC-enabled hosts prior to updating the BC server software. Refer to the BC Network Administration Guide.

Failure to migrate these hosts beforehand can result in the loss of configuration information.

Note: If the BC server and BC-enabled hosts are on different sides of a firewall, the following TCP ports must be manually opened *before* installing the BC server or BC host agent software: 4991, 4992, 4993, 4995.

After completing the installation, if this planned BC environment contains BC-enabled hosts, continue with the BC host agent software installation in the next step.

Step 8c: Install or update the BC host agent software

Make sure to complete the BC server software installation prior to installing any BC host agent software or updating any BC-enabled hosts.

Before starting the BC host agent software installation, refer to the BC Host Agent Release Notes to check for last-minute changes or problems that could affect the installation. Then install the BC host agent software or update the BC-enabled host for each planned host OS in the BC network, using the OS-specific BC Host Agent Installation Guide (these documents guide you through each installation).

Note: If a Windows NT BC-enabled host is being migrated, refer to the BC Network Administration Guide for Windows NT migration information and complete “Part II” of the migration process now.

Tip: Before continuing to the next step, review the items of interest found in “[After installing BC—What you should know](#)” on page 26 to avoid potential configuration or operational issues.

After completing the installations, continue with the next step.

Step 9: Browse to the BC GUI

Verify that the BC server software installed successfully by accessing the BC GUI. To access to the BC GUI, the following is required:

- The BC server platform must be operating.
- The BC server service must be running.
- Use of a supported browsing computer OS.
- Installation of a supported browser and recommended JRE combination on the browsing computer.

Refer to the BC Network Administration Guide for Web browser configuration information and the procedure for browsing to the BC GUI.

Note: Browsing to the BC GUI from the BC server platform using a locally installed browser is *not* supported. This includes running the platform via a Terminal Services session.

Note: Old favorites/bookmarks to the BC server platform may not work because the URL format has changed. The new URL format for browsing to the BC server platform is shown below:

```
https://<BC_server_platform_name1 or IP_address>:2381
or
https://<BC_server_platform_name or IP_address>:2381/business_copy
```

BC is compatible with, and can be accessed from, the HP Systems Insight Manager and System Management Homepage.

A general description of each major tab of the BC GUI follows:

- Jobs—Lists current jobs and the status of each.
- Resources—Lists storage systems and BC-enabled hosts available for inclusion in BC jobs and the properties of each.
- Logs—Lists the various BC configuration and event logs.
- Configuration—Lists various BC configuration options, such as where to back up configuration data and specific storage system options.
- Help—Opens the BC Online Help & User Guide to the main menu.
- Exit—Closes the BC interface.

From the BC GUI, BC jobs can be created, run, and maintained (see “[Plan, Create, and Test BC Jobs](#)” on page 47).

1. Use a fully qualified name (such as MyComputer.dept.com) or unqualified name (such as MyComputer), depending on network configurations and proxies.

Plan, Create, and Test BC Jobs

4

The role of a user typically includes the following tasks:

- Browsing to the BC GUI to perform
- Creating or updating BC jobs to accomplish specific functions
- Running BC jobs from the BC GUI or EVMCL on hosts

This chapter describes high-level tasks associated with BC jobs. Because BC jobs do not have the same functional purpose, do not expect one BC job format to accommodate all possible replication needs.

Tip: Review the items of interest found in [“Creating/running jobs—What you should know”](#) on page 27 to help avoid potential operational issues.

Topics addressed include:

- [BC job generation](#), page 48
- [Additional BC job information](#), page 51

BC job generation

Generating a BC job involves:

- [Job planning](#), page 48
- [Job creation](#), page 48
- [Job testing](#), page 50

Job planning

Planning each BC job should involve the following tasks:

- Identifying a specific purpose for the job

Keep each BC job limited in scope to a particular function, such as backing up the BC configuration files to a specific host. Attempting to include other functions at the same time may only complicate a simple job.
- Selecting the specific resource requirements (new or existing) to accomplish the replication

Resource requirements may include specific storage systems, third-party applications, BC software, DButil, and so forth.
- Determine if any existing BC job needs modification or deletion

Analyze any existing BC job by selecting the job from the jobs list and click **View job details**. During the analysis, you can determine if this job is good, needs modification, or is obsolete and needs deletion.

For example, BC no longer supports Windows NT BC-enabled hosts. Therefore, all BC jobs using this unsupported host must be updated to use a supported BC-enabled host (such as Windows Server 2003) or deleted from the jobs list.
- Decide whether an existing BC job can be leveraged or if a new job must be created

Creating a new job from scratch contains inherent problems, such as choosing the ideal job operation sequence and using the correct command syntax. Modifying an existing job designed for a similar purpose may be more desirable.

BC provides many templates for various replication methods. Consider reviewing each of these templates for satisfying job needs before attempting to create a new BC job from scratch.

Job creation

The fundamental tasks involved in creating a BC job include:

- Browsing to and logging in to the BC GUI and accessing the BC Jobs page

Accessing the BC Jobs page requires a properly set-up browsing computer. If the browsing computer setup is incorrect, the BC GUI guides you through the setup process. This setup involves using a supported browser and JRE combination.

After the browsing computer is set up correctly, the BC GUI can be accessed directly in the future using the following URL format and the correct login information:

```
https://<BC_server_platform_name or IP_address>:2381
or
https://<BC_server_platform_name or IP_address>:2381/business_copy
```


Note: Refer to the BC Network Administration Guide for supported OS-specific browser and JRE combinations and for additional information regarding browser optimization and troubleshooting issues.

■ Creating a new job or modifying an existing job

From the BC Jobs page, select one of the following:

- Click **Create** to display the Job Create page for creating a new job. From this page, BC provides various templates that can be used as a starting point for the new job. Click **Save** to add the new job to the jobs list.
- Select an existing job in the jobs list and click **Edit** to modify this job. The Job Edit page displays. From this page, any of the job attributes can be modified.

To create a duplicate job under a new name, change the name in the Name field and click **Save**. Then modify the job attributes for the intended purpose of this new job and click **Save** again to retain the new job attributes.

Note: For existing BC environments being updated, some existing BC jobs may require modification before the job runs successfully. Refer to the BC Network Administration Guide for information on migrating Windows NT BC-enabled hosts, which are no longer supported.

— Select job operations and flow

BC templates provide the preferred sequence for selected job tasks. Follow this guidance to ensure each job functions optimally. After a template is chosen, any operation in the **Step/Sequence** field can be rearranged as desired.

— DButil scripts

BC uses a DButil application to suspend Windows SQL Server 2000 database operations just prior to replicating a volume. After completion of the replication process, DButil allows the SQL Server database to resume normal operations.

DButil scripts are required to suspend and resume database operations. These scripts are added to BC jobs to provide a start-to-finish replication of the database.

Note: Refer to the BC Application Notes, Using SQL Server with DButil for details on using the DButil and creating scripts. This document and utility software is available on the BC product web site: <http://h18000.www1.hp.com/products/storage/software/bizcopyeva/index.html>.

■ Editing the Scheduler job

The Scheduler job is a new BC feature that provides a means for scheduling BC jobs without using a third-party application. Refer to the BC Online Help & User Guide for additional information.

The level of difficulty involved in creating a BC job varies. Some jobs perform simple tasks and are simple to create, whereas others perform very complex tasks and are much harder to create. The BC Online Help & User Guide, which is built into the BC GUI, provides detailed information related to BC job creation.

Job testing

Testing any new or modified BC job is essential to ensure that the job functions as expected. The fundamental tasks involved in testing a BC job include:

- Validating the job

Validation ensures that the job contains the proper operational syntax for running the job. All jobs are validated prior to performing the replication process and relative to the current storage configuration. If the job does not pass validation, an error exists that must be updated before the job can be run.

Make sure to validate all new or modified jobs before using them in a production environment. To manually test a BC job for validation, select a job from the Jobs page and click **Validate**.

- Running new jobs on a small sample

Always test new jobs on a small scale, if possible, to verify that the job functions as expected. Performing the task on a small scale limits the performance impact in a production environment until the job is known to be functionally sound.

- Undoing the new or modified job

Test the undo job process to ensure that the resources are properly released when no longer needed.

- Scheduling the job

Schedule new jobs as desired to minimize redundancy in manually running jobs over and over. When used in conjunction with a scheduling application, the BC feature allows maximum flexibility in running BC jobs.

Additional BC job information

For additional information on how to plan, create, and test BC jobs, browse to the desired BC environment using the BC Network Administration Guide and access the BC Online Help & User Guide. The BC Online Help & User Guide is part of the BC GUI. For your convenience, locate this online document on the BC Documentation CD (see [Table 5](#) on page 20 for instructions on opening the standalone Help & User Guide).

New BC v2.3 Features and Changes

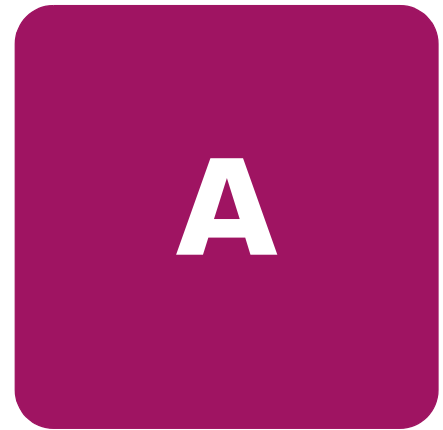


Table 21: New features or changes for BC

Feature/Change	Description
Added BC host agent for Linux support	Supported Linux OSs include: <ul style="list-style-type: none"> ■ Red Hat Enterprise Linux AS ■ SUSE Linux Enterprise Server 8 (SLES8)/United Linux 1.0
Added VCS v3.014 and v3.020 support for EVA storage systems	New releases of HSV controller software.
Added ACS v8.7x-4 (minimum) and v8.8x support for MA/EMA storage systems	New releases of HSG controller software. x = F, S, or P software version. Refer to the BC Network Administration Guide for version definitions.
Added support for installing the BC server software on SMS host	BC installs: <ul style="list-style-type: none"> ■ On one supported platform as an SMS: Windows Server 2003 Enterprise Edition ■ As a typical Windows application using an EXE file on an SMS ■ Using an SWP file through an SMA software interface
Added support for Command View EVA v3.2 and v3.3	New releases of storage manager software. For BC, Command View EVA v3.1 is supported using VCS v3.014 only. Command View EVA v3.2 and v3.3 are supported on all BC-supported VCS versions.
Added support for JREserver v1.0	A new utility that provides supported JREs for browsing to BC.
Added a Scheduler to the BC Jobs page	A scheduling feature that allows the user to schedule BC jobs as needed. Refer to the BC Online Help & User Guide for additional information.
Established the BC server software download as a full-version	The BC server software download is now a full-version, which allows new installations. Previous downloads supported BC server updates only.
Ended support for SMA software v2.0	Only SMA software v2.1 is supported.
Ended support for HSG Element Manager v1.0e	Only HSG Element Manager v1.0f is supported.
Ended supported for VCS v3.010 and earlier	Only the newer VCS releases are supported.
Ended supported for ACS v8.7x-3 and earlier	Only the newer ACS releases are supported.
Ended support for Windows NT hosts as BC-enabled hosts	BC no longer supports BC-enabled host features for this OS. Refer to the BC Network Administration Guide for additional information.

Table 21: New features or changes for BC (continued)

Feature/Change	Description
Ended support for browsing from OpenVMS, Tru64 UNIX, IBM AIX, Windows NT, and Windows 2000 Datacenter computers	The list of supported browsing computer OSs has narrowed. Refer to the BC Network Administration Guide for supported browser information.
Ended support for using Netscape browsers	Netscape browsers were replaced by Mozilla browsers, per new HP browser policy requirements.
Added capability to back up BC jobs and configuration files to a TruCluster	TruCluster names are now listed as a Host option on the Save/Reload tab.
Added support for two VERITAS Foundation Suite components on Solaris	The following components are supported: <ul style="list-style-type: none"> ■ VERITAS Volume Manager ■ VERITAS File System
Added support for assigning a cross-VRAID level when replicating EVA storage data using VCS 3.020	BC provides the ability to assign a specific VRAID level to a snapshot or snapclone in BC jobs.
Added incremental OS support for host agents	All BC host agents were updated for various OS changes.
Added Emulex LP9002 HBA support for Solaris	New host bus adapters.
Added FCA2684 (LP10000) and FCA2684DC (LP10000DC) HBA support for Tru64 UNIX	
Added A7388A (LP1050DC) and A7387A (LP1050) HBA support for Windows Server 2003 32-bit	
Added AB466A (LP1050DC) and AB467A (LP1050) HBA support for Windows Server 2003 64-bit	
Added A6826A HBA support for HP-UX 11i v1 and 11i v2	
Added support for the Microsoft Storport driver	Supported only on Windows Server 2003 Enterprise Edition hosts.
Updated HP-UX volume group support, eliminating the need for manually updating mapfiles	Mapfile updates are now automated for HP-UX volume groups and display on the Resources page in the BC GUI.
Recommended JRE versions for each OS are now provided through the BC server software	JRE versions are provided in the BC product kit on a separate CD-ROM, as a separate product download on the BC product web site, and as needed through the BC GUI.
Updated OpenVMS support to be cluster-aware	With BC host agent software installed in a cluster, if the impersonator node fails then BC automatically switches to a new impersonator node.
Added links to the BC GUI from HP Systems Insight Manager and HP System Management Homepage	These links provide easy access to BC.

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